



U.S. Department
of Transportation
**Research and
Special Programs
Administration**

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Washington, D.C. 20590

SEP 27 2001

Ref. No. 01-0221

Mr. Alfons Greider
Swiss Society of Chemical Industry
Nordstrasse 15
CH-8035 Zurich

Dear Mr. Greider:

This responds to your August 10, 2001 letter requesting clarification of the requirements for classification and packaging of materials poisonous (toxic) by inhalation and combustible liquids under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Your questions are paraphrased and answered as follows:

Q1. What are the requirements or criteria for classification and packaging of materials "poisonous by inhalation (PIH)," in accordance with the HMR?

A1. A poisonous material (liquid) is defined in § 173.132 as a material, other than a gas, which is presumed to be toxic to humans because it falls within one of the following categories when tested on laboratory animals: oral toxicity, dermal toxicity and inhalation toxicity. If your material meets the LC₅₀ or LD₅₀ criteria for any of these categories, it meets the definition of a Division 6.1 material. As specified in § 173.132(b)(3), albino rats are to be used to test for inhalation toxicity. Animal test data that has been reported in chemical literature should be used whenever possible. The packing group and hazard zones (A or B) for a Division 6.1 material must be determined in accordance with the criteria in § 173.133.

A gas "poisonous by inhalation" is defined in § 173.115(c) as a material which is a gas at 20°C (68°F) or less and a pressure of 101.3 kPa (14.7 psi) (a material which has a boiling point of 20°C (68°F) or less at 101.3 kPa (14.7 psi)) and which is known to be so toxic to humans as to pose a hazard to health during transportation, or in the absence of adequate data on human toxicity, is presumed to be toxic to humans because when tested on laboratory animals it has an LC₅₀ value of not more than 5000 ml/m³ (See § 173.116(a) for assignment of Hazard Zones A, B, C, or D).

The shipper must select an appropriate proper shipping name for the material from the § 172.101 Hazardous Materials Table; the sections cited under Column 8 for that entry contain the packagings authorized for that material.



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173.132,
171.12

- Q2. Can a Division 6.1 (POISON) label or placard specified in §§ 172.430 and 172.554, respectively, be modified to contain the words "INHALATION HAZARD?"
- A2. No. The label or placard shown in §§ 172.429 and 172.555, respectively, must be used to communicate the "INHALATION HAZARD" for a Division 6.1 PIH material. However, if the package is already marked "INHALATION HAZARD" as specified in § 172.313, the words "INHALATION HAZARD" are not required to be shown on the PIH label or placard.
- Q3. Is it acceptable to include the word "POISON" with the words "INHALATION HAZARD" on a PIH label or placard for Division 6.1 material, or on a shipping document?
- A3. It is not acceptable to include the word "POISON" with the words "INHALATION HAZARD" on a PIH label or placard. The PIH label and placard must be as shown in the examples specified in §§ 172.429 and 172.555, respectively. However, the shipping description of the material must include the words "Toxic Inhalation Hazard," or "Poison Inhalation Hazard," on the shipping paper or document (see § 172.203(m)).
- Q4. How would a material having a flammable liquid (flashpoint of $<23^{\circ}\text{C}$ (73°F)) hazard, a poison hazard, and high vapor pressure be classed and labeled?
- A4. In accordance with § 173.2a, if the material meets the criteria for a Division 6.1 (poisonous liquid), Packing Group I, poisonous by inhalation and a flammable liquid, it must be classed according to the highest applicable hazard class and therefore would be classed as a material poisonous by inhalation (see 2.0.3.1 of the UN Recommendations), having a flammable liquid subsidiary hazard. The vapor pressure of a liquid is taken into account in the definition of a PIH material in § 173.132(a)(1)(iii)(B) and in the packing group assignments in § 173.133(a)(2)(i) (see 2.6.2.2.4.7 of the UN Recommendations). Accordingly, the POISON INHALATION HAZARD and FLAMMABLE LIQUID labels must be applied (see § 172.402).
- Q5. What are Hazard Zones and where are they defined in the HMR?
- A5. Hazard zone is defined in § 171.8 and means one of four levels of hazard (Hazard Zones A, B, C, and D) assigned to PIH gases, as specified in § 173.116(a), and one of two levels of hazards (Hazard Zones A and B) assigned to liquids that are poisonous by inhalation, as specified in § 173.133(a). A hazard zone is based on the LC_{50} value for acute inhalation toxicity of gases and vapors, as specified in § 173.133(a). Hazard zones must be entered on the shipping paper immediately following the shipping description.
- Q6. Where in the HMR is the definition and requirements for packaging, marking, labeling, and placarding "Combustible liquids."
- A6. Under the HMR, a combustible liquid is any liquid that does not meet the definition of any other hazard class and has a flash point above 60.5°C (141°F) and below 93°C (200°F), and a

flammable liquid with a flash point at or above 38°C (100°F) that does not meet the definition of any other hazard class may be reclassified as a combustible liquid (see § 173.120(b)).

Packaging requirements for a combustible liquid are provided in § 173.150(f). A combustible liquid in a non-bulk packaging that is not a hazardous substance, hazardous waste, or marine pollutant is not subject to the HMR. A combustible liquid in a bulk packaging is subject to the HMR and the shipping paper, marking of packages, including the identification number, and placarding.

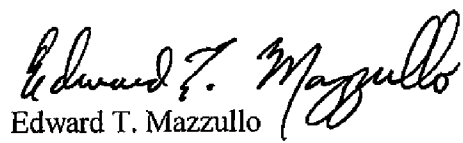
- Q7. For import shipments of hazardous materials into the United States by vessel, when does placarding apply? Is it when the ship enters U.S. waters, in the port, or may the forwarding agent bring the consignment from the port area to the first warehouse or customer?
- A7. If all or a portion of the transportation is by vessel, a material which is packaged, marked, classed, labeled, placarded, described, stowed and segregated and certified in accordance with the IMDG Code, may be offered and accepted for transportation and transported within the United States, subject to the conditions and limitations of requirements in § 171.12.

In accordance with § 171.12(c), a hazardous material (other than Division 1.1, 1.2 or Class 7) imported into or exported from the United States or passing through the United States in the course of being shipped between places outside the United States may be offered and accepted for transportation and transported by motor vehicle within a single port area (including contiguous harbors) when packaged, marked, classed, labeled, stowed and segregated in accordance with the IMDG Code, provided shipping papers and placards are prepared in accordance with the requirements of the HMR.

As specified in the final rule published in the Federal Register [HM-206D; 66 FR 44252; 8/22/01], when a hazardous material, which is subject to the requirements of the IMDG Code, is a material poisonous by inhalation, a package, freight container, or transport vehicle may be placarded in conformance with IMDG Code placards for Class 2.3 or Class 6.1, in place of the POISON GAS or POISON INHALATION HAZARD placard when moving within a single port area, including contiguous harbor.

I hope this satisfies your inquiry. If we can be of further assistance, please contact us.

Sincerely,


Edward T. Mazzullo
Director, Office of Hazardous
Materials Standards



SWISS SOCIETY OF CHEMICAL INDUSTRIES

Engrum
§ 171.12
Import & Export
01-0221

I recently informed the member companies of the Swiss Society of Chemical Industries and the Swiss branch of CEPE about the US provisions on "Import and Export of hazardous materials "poisonous by inhalation" (PIH) and "combustible liquids" (49 CFR 171.12).

My information produced a little storm of indignation because the European consignors dealing with international shipments of dangerous goods follow the international regulations of the IMDG-Code and the ICAO, respectively and do not observe the amendments of CFR 49. Therefore they were surprised by the fact that such requirements will enter into force on October 1, 2001.

It is felt that such national provisions will hamper transportation in international commerce. Shipments according to these requirements of materials likely to be PIH or combustible liquids to USA will cause problems and it might be difficult to assure compliance with the requirements in such a short time.

In particular, combustible liquids having a flash point between 60.5°C – 93°C are not regulated for transport on road and rail in Europe nor are they subject to the requirements of the IMDG Code. However, a number of pharmaceutical intermediates or products as well as solutions of dyes, fertilizers, pesticides etc. or raw materials which are shipped to the USA in large quantities may be candidates of this class of substances. The companies have now to check and eventually re-classify many of their products to be sure that they comply with the U.S. requirements. In addition databases have to be altered by establishing a new data field for U.S. shipments.

The same is true for PIH materials. The "PIH" as well as the "Combustible" labels and placards are not recognized in Europe nor have they been accepted by the UN Committee and this will most probably cause further confusion and problems both for importing to and exporting from USA of such substances. This means that the consignors are forced to contract local forwarding agents for re-labeling their packages or containers. This implies additional costs without contributing very much to safety. Furthermore it is felt that it would have better to seek for a globally harmonized solution which could be supported by all parties involved.

It is realized that there might be little chance that the decision will be retrograded to implement the provisions on October 1, 2001 and to allow for an additional transition period. However, I accumulated a number of questions from the industry side which need some explanations and I would appreciate very much if you could give me the answers. I quote:

- 1) What are the criteria for classifying substances "toxic by inhalation"? Where in 49 CFR can these criteria as well as the requirements for packaging be found?
- 2) Is it permitted to use a POISON 6.1 label or placard (§172.430) supplemented with the words INHALATION HAZARD or does it have to be the § 172.429 label?
- 3) Is it enough to use the words INHALATION HAZARDS on the label/placard or is it necessary to use POISON INHALATION HAZARD or POISON GAS on the label as well in the shipping document?

4) A highly flammable liquid (flash point $<23^{\circ}\text{C}$) having a toxic subrisk and a high vapour pressure may evaporate quickly. In that case the vapour might be PIH. What are the labelling requirement of such substances?

5) It is required to mention in the shipping paper Zone A or B for liquids or Zone A, B, C or D for gases. What are these zones and where are they defined in 49 CFR.

6) Where in 49 CFR are the definitions and requirements for packaging, marking labelling and placarding of "COMBUSTIBLE LIQUIDS" ?

7) Which label/placard has to be used for labelling/placarding COMBUSTIBLE LIQUIDS ?

8) Where actually does the provision for placarding (e.g. a tank on a ship) first apply? Is it as soon as the ship enters US waters ("upon entry into the United States") or is it in the port area or may the forwarding agent bring the consignment from the port area to the first warehouse or costumer?

I am sorry to bother you with these problems, but I think it is rather important to know what consignors in Switzerland have to plan in order to be in compliance with these regulations. Thank you in advance for your reply.

With best regards

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Zürich, 10. August 2001

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